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ABSTRACT

In order to help teachers and students assess the preferred cognitive styles of individual learners, Mount Hood Community College introduced and tested the use of cognitive mapping in its orientation program. A task force of managers, counselors, and instructors: (1) decided to use the Modified Hill Model to assess nine dimensions of student learning; (2) involved the faculty in the creation of support materials, including a self-paced assessment and interpretation guide, simplified scoring sheets, and notebooks containing pertinent research articles; and (3) developed a one-credit-hour orientation course designed to introduce cognitive mapping as a technique for student survival. As a test of the effectiveness of this course, the rates of retention of students taking the orientation course in Fall 1978 and Spring 1979 were compared with those of students who did not take the course. The study revealed that the treatment group achieved a higher retention rate from Fall term to Spring term (67%) than did the non-treatment group (43%). The study report enumerates the nine areas assessed by the Modified Hill Model and details the results of pre- and post-tests measuring students' increased awareness of teaching and learning styles. (JP)

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COGNITIVE MAPPING:

A RETENTION STRATEGY THAT WORKS

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Cognitive style mapping is based on the utilization of information from an assessment device ("the map") which helps teachers and learners determine what strategies, time frames and teaching environments will be effective for each student. It assumes that each person has a unique way of gathering information, filtering information and making decisions. Cognitive style addresses behavior and preference; it is value free -- there is no such thing as "good" or "bad" cognitive style. Cognitive style does not deal with the level of achievement of the learner or with the academic ability of the student. The concept of CSM complements an institution's emphasis on individualized instruction by (1) enabling professionals to intelligently and successfully structure the most effective learning environment for students, as individuals, and (2) helping students understand and accept responsibility for their own learning style.

The concept of cognitive mapping has significant appeal to educators because it attempts to answer two critical questions: Which methods of instruction work for specific students and which strategies for learning work best for each student? Thus, cognitive mapping attempts to translate educational and psychological research on cognition into practice.

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When Dr. R. Stephen Nicholson arrived as the new president of Mt. Hood Community College (MHCC) in 1976, he brought with him a philosophy of teaching and learning which went beyond education for all, toward education for each. He also had a strategy for translating this philosophy into practice. He dispatched a team of managers from the areas of instruction and student relations to investigate cognitive mapping activity at three community colleges known for their pioneering efforts: Oakland Community College, Fox Valley Technical Institute and Mountain View Community College. He gave the visitation team the charge of developing recommendations that would stimulate MHCC faculty interest in cognitive mapping. With this presidential support and encouragement, MHCC moved quickly from listening to external consultants to developing a cadre of internal consultants which devised a system appropriate to its environment.

The support system which emerged was devised by a task force of managers, counselors and instructors.

The first important decision made by this task force was to use the Modified Hill Model to assess learning styles. This model was originally developed by the late Dr. Joseph Hill at Oakland Community College near Detroit, Michigan, and modified by Dr. Harriet Erhart and Associates of Mountain View Community College in Dallas, Texas. Dr. Erhart's important contribution was a shortening of the assessment questionnaire from two and one-half hours to about thirty-five minutes. Both the Erhart and the Hill version yield a "map" of 28 elements. These elements assess these nine dimensions:

1. <u>How do we use our senses</u>? How we find meaning through our senses of hearing, seeing, smelling, tasting, feeling.

2. How do we communicate with others? Dimensions in this area include communication through body language, judging the appropriate physical and social distance, role playing to influence others, influencing the goals of others (salesmanship).

3. How sensitive are we to people and things? Dimensions include empathy, enjoyment of the beauty of an object, personal knowledge of oneself.

4. Do we perform motor skills according to a recommended form?

5. Are we committed to a set of values, a group of principles, obligations and/or duties?

6. How sensitive are we to time expectations?

7. To what degree are we influenced by associates, family or authority figures and self in making decisions?

8. To what degree do we use classifications or rules as the basis for accepting or rejecting an advanced hypothesis?

9. Do we reason by making comparisons or seeing differences or by discerning relationships and similarities?

The second task force decision was to apply for funds to involve faculty in a resource development project. A state grant of $20,000 was obtained and a team of interested faculty members were hired during the summer to revise available materials so they fit the MHCC situation. Alternative resources emerged to explain "the maps" to faculty and students and to make suggestions about classroom application. A slide-tape, a self-paced assessment with interpretation guide, simplified scoring sheets, and notebooks containing pertinent research articles on learning style were all developed. In addition, supportive management decisions were made. Funds were re-allocated to computerize the input and retrieval of maps as well as to produce class summary tables aimed at simplifying faculty use and interpretation. Another key decision re-allocated personnel to staff the "cog shop" with a counselor-coordinator who had extensive background in assessment and interpretation. This individual provided assistance to instructors with classroom interpretation and on-going in-service. Further, he updated materials and advised student walk-ins on cognitive style mapping as well as career guidance.

About 50 percent of the full-time faculty of 150 showed active interest in cognitive mapping. They had all members of their classes mapped and/or used interpretation materials in their classes, talked about their cognitive maps to students, or participated in the Instructional Style Guide. The Instructional Style Guide was developed through the faculty academic affairs committee and distributed to students via the orientation class. It lists information about the manner in which instructors teach their courses. A sample entry looks like this:

COURSE/ INSTRUCTOR	TYPE COURSE	INSTRUCTIONAL METHODS	EVALUATION METHODS	GRADING SYSTEM
FISHERIES TECH				
FI 31 J. Foster	lecture, experiential learning lab	discussion, audio-visual, one-to-one, lecture, textbook, written packages (lab), outside reading	lab experiences projects, objective and essay tests	curve, point system

A third key decision of the task force made cognitive mapping a mechanism for student orientation. It was agreed that responsibility should be placed on students to develop an awareness of their learning style and employ this awareness as a survival skill. Instructional and counselor planners concluded that the sensitivity to teaching and learning styles generated by interest in cognitive mapping would be used as the basis for a student survival course. As a part of the regular advising and placement testing process, new students were encouraged to register for this new one credit hour, human psychology course (Psych. 111). During the fall of 1978, and 1979, the majority of entering full-time students were registered in this course. In addition to intensive sessions on map interpretation, course content included touring campus facilities to develop an awareness of support services, completing a two-year educational plan for each student, and seeing a film on time management.

Data collected by MHCC's research office reveal that the retention of students who completed this course was much higher than the retention rate of students who did not complete this course:

	FALL TERM 1978	WINTER TERM 1979	RETENTION RATE WINTER/FALL	SPRING TERM 1979	RETENTION RATE SPRING/FALL
Control Group	429	239	56%	184	43%
Treatment Group	734	596	81%	489	67%
Treatment Group--Successful Completers of Psych. 111	487	433	89%	365	75%
Treatment Group--Unsuccessful Completers of Psych. 111	247	163	66%	124	50%

The 67 percent retention rate of the treatment group from fall term to spring term is substantially higher than the 43 percent retention rate of the non-treatment or control group. There is undoubtedly some contamination due to the non-random selection of the treatment group. It is important to note that the selection of this group was handled as a part of the student advising system by 12 counselors. The counselors agreed to be directive in advising students who were undecided about their majors to take the orientation course. Goal and career oriented students and those with high achievement profiles were less likely to receive suggestions from counselors to enter the course.

It is worth noting that the persistors in the non-treatment group actually had a higher GPA in the spring (2.94) than the persistors in the treatment group (2.64). This may suggest that the goal oriented, high achievers did steer away from the course. Although the qualifications on this data must not be forgotten, there appears to be substance to the conclusion that the treatment contributed to a higher retention rate.

It is possible that the higher retention rate is attributable to a "Hawthorne Effect" and not necessarily to the structure of this program or to the use of cognitive mapping. A variety of student-centered approaches might accomplish the same improvement of retention.

Perhaps more significant than the data, though, is the feedback obtained from students and instructors who participated in the program. Pre- and post-survey questions were administered to students. Highlights from the fall 1979 analysis follow. These are similar to the results obtained in fall 1978.

* 90 percent of the students have developed a one-year education plan (a 67 percent improvement from pre-test findings).

* 81 percent of the students have developed a two-year educational plan (a 62 percent improvement from pre-test findings).

* 94 percent of the students responded that they can describe how they prefer to learn; (a 91 percent improvement from the pre-test) and 84 percent can identify who has the greatest influence on their learning (an 89 percent improvement from pre-test findings).

* 85 percent of the respondents can describe the process they use in making decisions (a 67 percent improvement from pre-test findings).

* 76 percent of the students know the name of their faculty advisor and 87 percent have selected a major (a 77 percent improvement from the pre-test findings).

* 84 percent of the respondents "strongly agree" or "agree" that the "map" gave them useful information about how they get and use information, 12 percent are undecided, and 3 percent disagree.

* 85 percent of the respondents indicated that they can describe their "map" to another student with the help of the student guide, 13 percent are undecided, and 2 percent disagree.

* 81 percent of the respondents would recommend being mapped to other students, 15 percent are undecided, and 3 percent disagree.

Cognitive mapping has taken its place at the center of the student orientation program at Mt. Hood Community College. Analysis of preliminary retention data and feedback from faculty, management and student participants support the conclusion that it is a useful instructional tool. As one faculty member commented, "At the very least, cognitive mapping has stimulated interest in different teaching and learning styles." Such sensitivity will be critical to instructional development that goes beyond the standard lecture -- textbook approach. Cognitive mapping assumes that humanization, personalization and individualization are important characteristics of an optimal teaching-learning environment. These factors must be present if a staying environment for students is to be developed and maintained.

The research on retention underscores the importance of these factors, yet too often we are stymied by the conclusion that further research is needed. Further

research is being conducted on Mt. Hood's utilization of cognitive mapping as a retention strategy. For the present, though, we are pleased to report on this action program that appears to be working.

Good background material:

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